

## WHAT WE CLAIM IS:

1. An electrophoretic mobility measuring apparatus comprising: a cell capable of confining a sample; a  
5 transparent electrode forming a part of a cell wall; the other electrode opposite to the transparent electrode; voltage applying means for applying a voltage across both electrodes; a light incident unit for entering light into the cell through the transparent electrode; a light receiving  
10 unit for receiving, through the transparent electrode, outgoing light which scatters from the sample in the cell at a predetermined angle  $\theta$  with respect to the incident angle; and a measuring unit for measuring the Doppler displacement of particles in the sample based on the  
15 difference in frequency between the incident light and the outgoing light,

the direction of scattering vector which is the vector difference between incident and outgoing vectors, being substantially identical with that of the normal line of the  
20 transparent electrode face.

2. An electrophoretic mobility measuring apparatus according to Claim 1 wherein the direction of the scattering vector is substantially identical with that of the electric  
25 field.

3. An electrophoretic mobility measuring apparatus according to Claim 1 wherein the cell-side face of the transparent electrode is coated with platinum or a platinum alloy.

4. An electrophoretic mobility measuring apparatus according to Claim 1 wherein the cell inside is a casing-shape body provided at both end faces thereof with the electrodes, one of which is the transparent electrode.

5. An electrophoretic mobility measuring apparatus according to Claim 4 wherein the scattering light measuring point is located between the center line of the rectangular parallelepiped or cylindrical casing-shape body, and the inner wall of a lateral side thereof.

6. An electrophoretic mobility measuring apparatus according to Claim 1 wherein the transparent electrode is formed on a transparent substrate, the light incident unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through the other lateral side of the transparent substrate.

7. An electrophoretic mobility measuring apparatus according to Claim 1, further comprising cell driving means for moving the cell in the direction of the normal line of the transparent electrode face, and in the direction at right  
5 angles to this normal line direction.

8. An electrophoretic mobility measuring apparatus according to Claim 1 wherein the light incident unit uses a cylindrical lens for focusing the light on the scattering  
10 volume portion.

9. An electrophoretic mobility measuring apparatus according to Claim 1 wherein the light receiving unit uses a cylindrical lens for detecting the light from the scattering  
15 volume portion.

10. An electrophoretic mobility measuring apparatus comprising: a cell capable of confining a sample; an opaque electrode forming a part of a cell wall; the other electrode  
20 opposite to the opaque electrode; voltage applying means for applying a voltage across both electrodes; a light incident unit for entering light into the cell through the opaque electrode; a light receiving unit for receiving the outgoing light which scatters from the sample in the cell  
25 at a predetermined angle  $\theta$  with respect to the incident

angle; and a measuring unit for measuring the Doppler displacement of particles in the sample based on the difference in frequency between the incident light and the outgoing light,

5           the direction of scattering vector which is the vector difference between incident and outgoing vectors, being substantially identical with that of the normal line of the opaque electrode face, and

          the opaque electrode having (i) a transparent incident  
10 window upon which incident light is incident, and (ii) a transparent outgoing window through which outgoing light outgoes.

11. An electrophoretic mobility measuring apparatus  
15 according to Claim 10 wherein the direction of the scattering vector is substantially identical with that of the electric field.

12. An electrophoretic mobility measuring apparatus  
20 according to Claim 10 wherein the cell-side face of the opaque electrode is coated with platinum or a platinum alloy.

13. An electrophoretic mobility measuring apparatus  
according to Claim 10 wherein the opaque electrode is formed  
25 on a transparent substrate, the light incident unit is

arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through the other lateral side of the transparent substrate.

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14. An electrophoretic mobility measuring apparatus according to Claim 10, further comprising cell driving means for moving the cell in the direction of the normal line of the opaque electrode face, and in the direction at right  
10 angles to this normal line direction.

15. An electrophoretic mobility measuring apparatus according to Claim 10 wherein the light incident unit uses a cylindrical lens for focusing the light on the scattering  
15 volume portion.

16. An electrophoretic mobility measuring apparatus according to Claim 10 wherein the light receiving unit uses a cylindrical lens for detecting the light from the scattering  
20 volume portion.